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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,129

12/14/2004

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58086-223916

6714

26694

7590

07/09/2008

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EXAMINER

JOHNSON, KEVIN M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,129	Applicant(s) CARTER ET AL.	
	Examiner KEVIN M. JOHNSON	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 17-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/1/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-8 and 17-23 in the reply filed on 5/19/2008 is acknowledged.
2. Claims 9-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Status

3. Claims 9-16 are withdrawn. Claims 1-8 and 17-23 are pending and presented for examination.

Claim Objections

4. Claim 23 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 23 simply restates the limitations of claim 18 from which it depends, and therefor fails to limit the previous claim.
5. Claims 18-21 are objected to because of the following informalities: the claims are dependent on a non-elected claim. However, because the claims are drawn to a catalytic system and the claim from which they depend is drawn to a method of making a catalytic system, the claims have been examined on the basis that they should

properly depend from claim 17 in the same way that claim 22 does. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-6 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lauth et al. (US 5559065) in view of Chang (US 2001/0041277).

In regard to claims 1 and 17, Lauth teaches a catalyst system comprising a support on which a catalytic alloy is located. Although not exemplified, alumina is taught to be a suitable carrier (column 4, lines 13-17). The metal alloy catalyst is selected from the group including Pd-Zr, Pt-Zr, Ni-Zr, Pd-Ti and Pt-Ti (column 5, lines 15-20), of which Pd-Zr and Pt-Zr are preferred (examples 1-6, 17-28 and 37-39). It would have been obvious to one skilled in the art at the time of the invention that if a Pd-Zr or Pt-Zr catalyst alloy was selected in the system taught by Lauth, Zr would be present on the surface of the carrier. Lauth fails to teach that the metal catalyst applied to the ceramic support is in particle form.

Chang teaches a method for sputtering metal catalyst particles on to a substrate by utilizing a sputtering process (paragraph 33). Any known sputtering process could be used, and the sputtering conditions may be altered to change the desired particle size of the catalytic metal (paragraph 34). The catalytic metal selected for deposition is preferably Pt or a Pt-alloy (paragraph 34).

It would have been obvious to one skilled in the art that the sputtering process taught by Lauth for the deposition of the catalyst alloy could be altered resulting in the deposition of catalytic metal particles as taught by Chang. Such a modification would have been motivated by the teaching in Chang that sputtering is commonly used to deposit catalytic Pt or Pt-alloy particles on a substrate.

In regard to claims 2 and 18, Lauth teaches that the preferred shapes for the support material include spheres and pellets (column 4, lines 20 and 21).

In regard to claims 3 and 19, it would have been obvious to one skilled in the art at the time of the invention that by the sputtering process utilized by Lauth would result in Pd catalyst particles being deposited on the substrate. One skilled in the art at the time of the invention would realize that by utilizing separate sputtering targets for Pd and Zr (examples 17-28), particles of Pd would be deposited independently on the substrate surface.

In regard to claims 4 and 20, Lauth teaches that Pt makes up 36% and Zr constitutes 64% of the metallic loading on the carrier. The content of the deposited layer on the support is therefore between 25% and 75% Zr. Lauth fails to teach that the deposited metals constitute a monolayer.

Chang teaches that the sputtering conditions can be changed to reduce or increase the amount of material deposited on the surface (paragraph 34). It would have been obvious to one skilled in the art at the time of the invention to alter the sputtering conditions in the process taught by Lauth to produce a monolayer of the deposited material. The teachings of Chang would provide motivation for the reduction of the amount of material deposited through a process of routine experimentation.

In regard to claims 5 and 21, it would have been obvious to one skilled in the art at the time of the invention that by the Pd-Zr use in the sputtering process taught by Lauth would result in Zr being deposited on the substrate. One skilled in the art at the

time of the invention would realize that by utilizing separate sputtering targets for Pd and Zr (examples 17-28), particles of Zr would be deposited on the substrate surface.

In regard to claim 6, it would have been obvious to one skilled in the art at the time of the invention to utilize both the Pd-Zr and Pd-Ti alloys in the catalytic system taught by Lauth, resulting in the presence of both Ti and Zr at the surface of the ceramic substrate. Such a modification would have been motivated by the teaching in Lauth of Pd-Zr and Pd-Ti as suitable alloys. It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition useful for the very same purpose (MPEP 2144.06).

10. Claims 7, 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lauth as applied to claims 1 and 17 above, and further in view of Paulus et al. (US 5512324).

In regard to claims 7 and 22, Lauth fails to teach that the alumina support is attached to a metal monolith.

Paulus teaches that a catalyst can be manufactured that comprises a metal monolith on which an insulative coating has been sprayed. The coating contains alumina and a catalyst such as palladium or platinum (column 2, lines 1-4). It would have been obvious to one skilled in the art at the time of the invention to utilize the catalyst taught by Lauth in the coating process taught by Paulus. Such a modification would have been motivated by the desire to utilize the material produced by Lauth in catalytic converter applications in the manner taught by Paulus, extending the functionality of the material.

In regard to claim 8, Paulus teaches that the alumina in the coating is of a particulate nature (column 2, lines 4-7).

Conclusion

11. All claims presented for examination are rejected. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. JOHNSON whose telephone number is (571)270-3584. The examiner can normally be reached on Monday-Friday 7:30 AM to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793

/Kevin M Johnson/
Examiner, Art Unit 1793